

Natural Environment Study

Sedimentation/Siltation Total Maximum Daily Load (TMDL) for the Imperial Valley Drains: Niland 2, P, and Pumice Drains, and Implementation Plan

The purpose of the Natural Environment Study (NES) is to provide biological studies and biological-related information necessary for the environmental review process regarding land use decisions. Full disclosure of environmental impacts of proposed projects is required to satisfy legal mandates of various State and Federal statutes. The NES includes documentation of project area biological resources and an impact assessment of project alternatives on those resources.

PROJECT DESCRIPTION

The proposed project is an amendment to the Water Quality Control Plan for the Colorado River Basin Region (Basin Plan) that will establish the **Sedimentation/Siltation Total Maximum Daily Load (TMDL) for the Imperial Valley Drains: Niland 2, P, and Pumice Drains, and Implementation Plan**. A TMDL is the maximum amount of a pollutant that a water body can receive while it still meets water quality objectives (narrative or numerical) designed to protect beneficial uses, pursuant to 40 Code of Federal Regulations (CFR) 130.2(d), and California Water Code (CWC) 13241.

Sediment, suspended solids, and turbidity are specific parameters that apply to sediment conditions. Narrative water quality objectives for these three parameters were established by the Regional Board to protect beneficial uses of waterways in the Region. Violation of these objectives indicates impairment of beneficial uses, and degraded water quality conditions. The Basin Plan states that beneficial uses of Imperial Valley Drains include: warm freshwater habitat (WARM); wildlife habitat (WILD); preservation of rare, threatened, or endangered species (RARE); contact- and non-contact water recreation (REC I and REC II); and freshwater replenishment (FRSH) (California Regional Water Quality Control Board as amended to date).

This TMDL includes allocations that apply to three Imperial Valley drains (Niland 2, P, and Pumice) and their tributary drains (Vail 4A, Vail 4, Vail 3A, Vail 3, and Vail 2A feed into Pumice), and includes an Implementation Plan for all Imperial Valley drains that empty directly into the Salton Sea. This project also includes a Prohibition for discharge of silt-laden tailwater into the Imperial Valley, including the New River, Alamo River, all Imperial Valley Drains, and their tributaries.

The Niland 2, P, and Pumice drains (and their tributary drains) total 39 miles long, and are referred to in this document as "subject drains". Niland 2, P, and Pumice drains empty directly into the Salton Sea. "Project area" refers to the subject drains' 39 miles of canals and the surrounding farmland that drains into them, as well as all drains and surrounding farmland that empty directly into the Salton Sea. (The Alamo River, New River, and drains that empty into them are covered under previous TMDLs for those rivers.)

The TMDL's purpose is to protect water quality in the subject drains from sediment-caused impairments. Excess sediment in the water column and in bottom deposits adversely affects aquatic and terrestrial organisms. Sediment also serves as a carrier for DDT, DDT metabolites, and other insoluble pesticides including toxaphene. These deposits and chemicals pose a threat to aquatic and avian communities and people feeding on fish.

The main source of sediment to the drains is agricultural runoff. The drain system is owned mainly by private landowners. The Imperial Irrigation District (IID), in addition to operating and maintaining the drainage system, also owns farmland in the Valley (e.g., a recently purchased 40,000 acres of agricultural land), and thus also is an owner of the drains. Most sediment in drains is due to tailwater and, to a lesser extent, dredging of the drains. (Tailwater is applied irrigation water that does not percolate into soil, thereby exiting at the lower end of the field, into an IID drain.)

The Amendment will require responsible parties to utilize sediment-control Management Practices (MPs). The proposed time schedule in the TMDL Implementation Plan occurs in four phases with interim numeric targets and corresponding allocations, and requires full compliance by the year 2015. The proposed Basin Plan Amendment:

1. Updates references to the State's Nonpoint Source Management Plan.
2. Includes Regional Nonpoint Source Management Plan elements.
3. Deletes dated information that is no longer accurate.
4. Establishes a numeric target of 200 milligrams per liter of total suspended solids.
5. Adds a section for this proposed TMDL that:
 - a. Summarizes TMDL elements, including the Problem Statement, Numeric Target, Source Analysis, Margin of Safety, Seasonal Variations and Critical Conditions, Loading Capacity, and Load Allocations and Wasteload Allocations;
 - b. Establishes interim numeric targets;
 - c. Designates responsible parties and management actions;
 - d. Lists recommended Management Practices (MPs), with estimated implementation costs and financing sources;
 - e. Describes recommended actions for cooperating agencies;
 - f. Describes TMDL compliance monitoring and enforcement activities;
 - g. Describes Regional Board water quality monitoring and implementation tracking activities to assess TMDL implementation;
 - h. Describes public reporting activities; and
 - i. Describes the Regional Board review process.

STUDY METHODOLOGY

Literature Review Methods

Research was done on the wildlife, vegetation, and habitats in and near drains that empty directly into the Salton Sea. Literature sources included field guides, research papers, websites, government publications, and a query of the California Natural Diversity Database (California Department of Fish and Game 2003), among others. Information specifically cited within this report is recorded in the "References Cited" section at the end of this Natural Environment Study. Background information not specifically cited within the text is recorded in the "References Relied Upon" section at the end of this Natural Environment Study.

Literature Review Results

The California Department of Fish and Game and U.S. Fish and Wildlife Service designate the status of a species. "Special" is defined here as plants, animals, or natural communities whose populations are of concern, including those that are endangered, threatened, special concern species, and otherwise rare/sensitive. This is consistent with the California Natural Diversity Database, which tracks such animals (California Department of Fish and Game, July 2003), plants (California Department of Fish and Game, October 2003), and natural communities (California Department of Fish and Game, September 2003). Special status species are categorized and defined as follows:

"Endangered" species are those that have such limited numbers that they are in imminent danger of extinction throughout all or a significant portion of their range.

"Threatened" species are those that are likely to become endangered in the foreseeable future.

"Special Concern Species" are those that have declining population levels, limited ranges, and/or continuing threats that have made them vulnerable to extinction. (State-listed Special Concern Species that are "Fully Protected" are those that may not be taken or possessed without a state permit. Federally-listed Special Concern Species are no longer tracked by the U.S. Fish and Wildlife Service, and thus are not discussed in this report.)

"Rare/Sensitive" species are those that are biologically rare, very restricted in distribution, declining throughout their range, in danger of local extirpation, are closely associated with a rapidly declining habitat, or have a critical, vulnerable stage in their life cycle that warrants monitoring.

Endangered and threatened species have the highest level of protection, then special concern species, then rare/sensitive species. When a species is listed in more than one category in the California Natural Diversity Database (e.g., SSCS and R/S), this Natural Environment Study records only the category offering the highest level of protection.

Table 1 lists the status of specific species and natural communities identified in the literature review as occurring or potentially occurring in the vicinity (i.e., in or near) of drains that empty directly into the Salton Sea. Special status species recorded as "accidental" in the literature are

not included in this report, as project area habitat generally is not considered suitable for these species. Accidental visitors likely were blown off-course by extreme inclement weather conditions, and would not otherwise utilize project area habitat.

Table 1. Special Status Species and Natural Communities Occurring or Potentially Occurring in the Vicinity of Drains that Empty Directly Into the Salton Sea

COMMON NAME	SCIENTIFIC NAME	STATUS
<u>Wildlife = 91</u>		
Cheeseweed owlfly	<i>Oliarces clara</i>	R/S
Colorado River toad	<i>Bufo alvarius</i>	SSCS
Arroyo southwestern toad	<i>Bufo microscaphus californicus</i>	FE
Couch's spadefoot	<i>Scaphiopus couchii</i>	SSCS
Lowland leopard frog	<i>Rana yavapaiensis</i>	SSSC
Flat-tailed horned lizard	<i>Phrynosoma mcalli</i>	SSCS
Colorado Desert fringe-toed lizard	<i>Uma notata notata</i>	SSCS
Desert tortoise	<i>Gopherus agassizi</i>	ST, FT
Desert pupfish	<i>Cyprinodon macularius</i>	SE, FE
Razorback sucker	<i>Xyrauchen texanus</i>	SE, FE
Common loon	<i>Gavia immer</i>	SSCS
American white pelican	<i>Pelecanus erythrorhynchos</i>	SSCS
California brown pelican	<i>Pelecanus occidentalis californicus</i>	SE, FE
Double-crested cormorant	<i>Phalacrocorax auritus</i>	SSCS
American bittern	<i>Botaurus lentiginosus</i>	R/S
Western least bittern	<i>Ixobrychus exilis hesperis</i>	SSCS
Great blue heron	<i>Ardea herodias</i>	R/S
Great egret	<i>Ardea alba</i>	R/S
Snowy egret	<i>Egretta thula</i>	R/S
Black-crowned night heron	<i>Nycticorax nycticorax</i>	R/S
White-faced ibis	<i>Plegadis chihi</i>	SSCS
Wood stork	<i>Mycteria americana</i>	SSCS
Fulvous whistling duck	<i>Dendrocygna bicolor</i>	SSCS
Aleutian Canada goose	<i>Branta canadensis leucopareia</i>	R/S

COMMON NAME	SCIENTIFIC NAME	STATUS
Canvasback	<i>Aythya valisineria</i>	R/S
Osprey	<i>Pandion haliaetus</i>	SSCS
White-tailed kite	<i>Elanus leucurus</i>	SSCS-FP
Bald eagle	<i>Haliaeetus leucocephalus</i>	SE, FT
Golden eagle	<i>Aquila chrysaetos</i>	SSCS-FP
Northern harrier	<i>Circus cyaneus</i>	SSCS
Sharp-shinned hawk	<i>Accipiter striatus</i>	SSCS
Cooper's hawk	<i>Accipter cooperi</i>	SSCS
Swainson's hawk	<i>Buteo swainsoni</i>	ST
Ferruginous hawk	<i>Buteo regalis</i>	SSCS
Merlin	<i>Falco columbarius</i>	SSCS
American peregrine falcon	<i>Falco peregrinus anatum</i>	SE
Prairie falcon	<i>Falco mexicanus</i>	SSCS
California black rail	<i>Laterallus jamaicensis coturniculus</i>	ST
Yuma clapper rail	<i>Rallus longirostris yumanesis</i>	ST, FE
Greater sandhill crane	<i>Grus canadensis tabida</i>	ST
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	FT
Mountain plover	<i>Charadrius montanus</i>	SSCS
Long-billed curlew	<i>Numenius americanus</i>	SSCS
Laughing gull	<i>Larus atricilla</i>	SSCS
California gull	<i>Larus californicus</i>	SSCS
Van Rossem's gull-billed tern	<i>Sterna nilotica vanrossemi</i>	SSCS
Caspian tern	<i>Sterna caspia</i>	R/S
Forster's tern	<i>Sterna forsteri</i>	R/S
Black tern	<i>Chlidonias niger</i>	SSCS
Black skimmer	<i>Rynchops niger</i>	SSCS
Burrowing owl	<i>Athene cunicularia</i>	SSCS
Long-eared owl	<i>Asio otus</i>	SSCS
Short-eared owl	<i>Asio flammeus</i>	SSCS
Vaux's swift	<i>Chaetura vauxi</i>	SSCS

COMMON NAME	SCIENTIFIC NAME	STATUS
Rufous hummingbird	<i>Selasphorus rufus</i>	R/S
Gila woodpecker	<i>Melanerpes uropygialis</i>	SE
Olive-sided flycatcher	<i>Contopus borealis</i>	R/S
Willow flycatcher	<i>Empidonax traillii</i>	SE
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>	SSCS
California horned lark	<i>Eremophila alpestris actia</i>	SSCS
Purple martin	<i>Progne subis</i>	SSCS
Bank swallow	<i>Riparia riparia</i>	ST
Black-tailed gnatcatcher	<i>Polioptila melanura</i>	R/S
Crissal thrasher	<i>Toxostoma crissale</i>	SSCS
Le Conte's thrasher	<i>Toxostoma lecontei</i>	SSCS
Loggerhead shrike	<i>Lanius ludovicianus</i>	SSCS
Least Bell's vireo	<i>Vireo bellii pusillus</i>	SE, FE
Virginia's warbler	<i>Vermivora virginiae</i>	SSCS
Yellow warbler	<i>Dendroica petechia brewsteri</i>	SSCS
Hermit warbler	<i>Dendroica occidentalis</i>	R/S
Yellow-breasted chat	<i>Icteria virens</i>	SSCS
Summer tanager	<i>Piranga rubra</i>	SSCS
Abert's towhee	<i>Pipilo aberti</i>	R/S
Chipping sparrow	<i>Spizella passerina</i>	R/S
Brewer's sparrow	<i>Spizella breweri</i>	R/S
California gray-headed junco	<i>Junco hyemalis caniceps</i>	SSCS
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	R/S
Lawrence's goldfinch	<i>Carduelis lawrencei</i>	R/S
California leaf-nosed bat	<i>Macrotus californicus</i>	SSCS
Mexican long-tongued bat	<i>Choeronycteris mexicana</i>	SSCS
Spotted bat	<i>Eudema maculatum</i>	SSCS
Pallid bat	<i>Antrozous pallidus</i>	SSCS
Pocketed free-tailed bat	<i>Nyctinomops femorasaccus</i>	SSCS
Big free-tailed bat	<i>Nyctinomops macrotis</i>	SSCS

COMMON NAME	SCIENTIFIC NAME	STATUS
Townsend's western big-eared bat	<i>Plecotus townsendii townsendii</i>	SSCS
California mastiff bat	<i>Eumops perotis californicus</i>	SSCS
Coachella Valley round-tailed ground squirrel	<i>Spermophilus tereticaudus chlorus</i>	SSCS
Palm Springs pocket mouse	<i>Perognathus longimembris bangsi</i>	SSCS
Colorado Valley woodrat	<i>Neotoma albigula venusta</i>	R/S
American badger	<i>Taxidea taxus</i>	R/S
Nelson's bighorn sheep	<i>Ovis canadensis nelsoni</i>	R/S

Plants = 17

Peirson's pincushion	<i>Chaenactis carphoclinia</i> var. <i>peirsonii</i>	R/S
Mecca-aster	<i>Xylorhiza cognata</i>	R/S
Orcutt's woody-aster	<i>Xylorhiza orcuttii</i>	R/S
California ditaxis	<i>Ditaxis serrata</i> var. <i>californica</i>	R/S
Harwood's milk-vetch	<i>Astragalus insularis</i> var. <i>harwoodii</i>	R/S
Peirson's milk-vetch	<i>Astragalus magdalenae</i> var. <i>peirsonii</i>	SE, FT
Coachella Valley milk-vetch	<i>Astragalus lentiginosus</i> var. <i>coachellae</i>	FE
Triple-ribbed milk-vetch	<i>Astragalus tricarinatus</i>	FE
Coves's cassia	<i>Senna covesii</i>	R/S
Slender woolly-heads	<i>Nemacaulis denudata</i> var. <i>gracilis</i>	R/S
Abrams's spurge	<i>Chamaesyce abramsiana</i>	R/S
Brown turbans	<i>Malperia tenuis</i>	R/S
Munz's cholla	<i>Opuntia munzii</i>	R/S
Wiggins's cholla	<i>Opuntia wigginsii</i>	R/S
Giant Spanish-needle	<i>Palafoxia arida</i> var. <i>gigantea</i>	R/S
Thurber's pilostyles	<i>Pilostyles thurberi</i>	R/S
Orocopia sage	<i>Salvia greatae</i>	R/S

Natural Communities = 3

Transmontane Alkali Marsh	not applicable	R/S
Active Desert Dunes	not applicable	R/S

COMMON NAME	SCIENTIFIC NAME	STATUS
Stabilized and Partially Stabilized Desert Dunes	not applicable	R/S

Legend:

FE = Federal Endangered
 FT = Federal Threatened
 R/S = Rare or Sensitive
 SE = State Endangered
 ST = State Threatened
 SSCS = State Special Concern Species
 SSCS-FP = State Special Concern Species - Fully Protected

ENVIRONMENTAL SETTING

Affected Environment

The area affected by the proposed project's allocations includes 3 subject drains and the surrounding farmland that drains into them. The area affected by the proposed project's Implementation Plan includes all 31 drains (including the subject drains) that empty directly into the Salton Sea, and the surrounding farmland that drains into them. This area is located in Imperial County in southeastern California. The proposed project would continue to bring the entire Imperial Valley into compliance with the same sedimentation/siltation standard, as represented by a Total Maximum Daily Load numeric target and corresponding load allocation (see TMDL Staff Report), and Implementation Plan. Figure 1 shows a map of the three drains (and their tributary drains), for which allocations have been specified in this TMDL.

Figure 1: Drains (Niland 2, P, and Pumice and Their Tributary Drains) for Which Allocations Have Been Specified in this TMDL



Imperial Valley drains typically range in width from five to ten feet, with a few up to twenty feet in width. Drain mouths are at an elevation of about 238 feet below sea level, where they empty into the Salton Sea. (The Salton Sea's level fluctuates with agricultural flow discharges and seasonal evapotranspiration rates). Figure 2 shows the P Drain, and Figure 3 shows the channel leading downstream away from the P Drain.



Figure 2. The P Drain



Figure 3. Channel That Leads Downstream from the P Drain

Weather

Drains that empty directly into the Salton Sea are located in the Colorado Desert region of the Sonoran Desert. The climate is hot, with dry summers, occasional thunderstorms, and gusty high winds with sandstorms. The area is one of the most arid in the United States, with an average annual rainfall of about two inches (California Department of Water Resources 1997-2002). Average temperature is 54°F in January, and 92°F in July. Imperial Valley evapotranspiration rates can exceed 84 inches per year, and can be one-third inch per day in hot summer months. The frost-free period was greater than 300 days per year for nine of ten years, and greater than 350 days per year for three of ten years (Setmire et al. 1990).

Land Uses

Drains that empty directly into the Salton Sea are located in Imperial County. The County covers approximately 4,597 square miles (2,942,080 acres) (Imperial County 1998). About 74% of County lands are undeveloped desert and mountain areas, mostly under federal or state ownership. About 17% of County lands are irrigated for agriculture, totaling over 500,000 acres

located mostly in Imperial Valley. The Salton Sea covers about 8% of the County. Developed areas (e.g., cities, communities, and support facilities) occupy less than 1% of County land. Table 2 shows Imperial County land use distribution.

Table 2. Imperial County Land Use Distribution

Land Use	Acres	Data Source
Irrigated (Agriculture)		
Imperial Valley	479,327	Imperial Irrigation District 1999
Bard Valley	14,737	Imperial County 1998
Palo Verde	7,428	Imperial County 1998
Developed		
Incorporated	9,274	Imperial County 1998
Unincorporated	8,754	Imperial County 1998
Desert and Mountains		
Federal	1,459,926	Imperial County 1998
State	37,760	Imperial County 1998
Indian	10,910	Imperial County 1998
Private	669,288	Imperial County 1998
Other		
Salton Sea	242,049	Tetra Tech Inc. 2000

Imperial Valley contains over 480,000 acres of irrigated land in production. Major Valley crops are alfalfa, wheat, sudan grass, and sugar beets, based on amount of land in production (Imperial County Agricultural Commissioner 1995-2001). IID distributed 2.6 to 3.2 million acre-feet/year of irrigation water from the Colorado River from 1964 through 1998.

Imperial County has an agricultural-based economy, and produces over \$1 billion dollars annually (California Farm Bureau Federation 2003). One in three Imperial Valley jobs is agriculture-related (Imperial Irrigation District 1998). For every \$1,000 of total gross value produced in the agriculture sector, \$345 of personal income is generated from agriculturally-related jobs (Imperial County Agricultural Commissioner 2001).

Surface (gravity) irrigation is the dominant irrigation method in Imperial Valley. Two types of surface irrigation are practiced: (a) furrow irrigation, which involves flowing water down small V-shaped channels, and (b) border irrigation (also known as flood irrigation), which involves flowing a sheet of water across a field. For both methods, water is delivered to a field's head canal via the All-American Canal and a series of delivery canals. Then, a ditch with sliding gates conveys irrigation water via gravity into small basins at the field's top end (head end).

In furrow irrigation, water then discharges from these basins into small channels called furrows (Figure 4), using siphon tubes or spiles. (Spiles are small pipes installed in the banks of basins, one per irrigated furrow.) Discharge through spiles frequently is controlled using a small wooden stake that slides across the spile opening. Water infiltrates the soil from the

bottom and sides of furrows, and moves downward and laterally. Furrow irrigation is suitable to crops that are subject to injury if water covers their crowns or stems, such as vegetables, cotton, corn, sugar beets, potatoes, and seeds.

In border irrigation, water then exits the ditch directly into each border strip (i.e., the area between two small earthen berm borders) through a 12-inch to 14-inch pipe regulated by a metal slide, or indirectly through temporary small ponds installed between water inlets and border strips. The border strip may measure 10 to 100 feet wide and 300 to 2,600 feet long. Border irrigation is suitable to crops that are not sensitive to wet soils around their stems, such as alfalfa, sudan grass, and maize.



Figure 4. Furrow Irrigation in the Imperial Valley

Ecological Setting

Drains that empty directly into the Salton Sea provide important habitat for many kinds of wildlife. This habitat supports a substantially different ecosystem than that of the Salton Sea, into which these drains empty. Birds are the most diverse wildlife group using the drains, as indicated by their abundance and species richness. Fish provide sustenance and recreational benefits to users (although this is unauthorized in drains), as well as food for numerous bird species.

Intricate food webs incorporate many terrestrial and aquatic elements, including plants, invertebrates, fish, mammals, reptiles, amphibians, and birds. Organisms at the food web base are consumed by organisms at the next highest trophic level. These organisms then are consumed by the next highest trophic level, and so on until the top of the food web is reached.

The base of the food web includes plankton, detritus, and aquatic vegetation. These organisms

are consumed by aquatic invertebrates such as snails, waterboatmen, and insect larvae. Aquatic invertebrates are consumed by crayfish, Asiatic river clams, and fish. (Some fish also may consume plankton directly.) Fish present in the drains include the desert pupfish, mosquito fish, carp, longjaw mudsucker, sailfin mollie, and tilapia (U.S. Fish and Wildlife Service 1997b).

Turtles and birds are at the top of the local food web. Turtles, such as the spiny softshell turtle, prey on desert pupfish and aquatic invertebrates including Asiatic river clams. Many bird species feed on crayfish, clams, other aquatic invertebrates, fish, and aquatic vegetation. These birds include the ruddy duck, American coot, northern shoveler, cattle egret, and Yuma clapper rail, among others. Generally, waterfowl and shorebirds are seen where the drains meet the Salton Sea.

Riparian habitat is found along some parts of the drains that empty directly into the Salton Sea, especially in the upstream sections. These riparian areas provide important habitat for songbirds, which are the most common species using the drains. Red-winged blackbirds, yellow-rumped warblers, and savannah sparrows are common. Riparian corridors are potential wildlife movement corridors, and thus are important aspects of habitat. The dominant plant species along these corridors is tamarisk (also known as salt cedar), an introduced species that has suffocated native vegetation (Montgomery Consulting Engineers Inc. 1987). Figure 5 shows riparian habitat just downstream of the Pumice Drain.



Figure 5. Riparian Habitat Downstream of the Pumice Drain

Fish and wildlife use drains as alternative habitat because 97% of California wetlands have been converted to other uses or otherwise degraded (Bennett 1998). Imperial Valley drains are inhabited by at least thirteen fish species (Imperial Irrigation District 1994), including the state and federally endangered desert pupfish (California Department of Fish and Game 1991, Salton Sea Authority 1999). The desert pupfish was found in 24 of 29 drains sampled by the California Department of Fish and Game in 1994 (Keeney 2000). All 24 of these drains emptied directly into the Salton Sea. Figure 6 shows the desert pupfish.



Figure 6. Desert Pupfish

Drain banks are used for foraging and shelter by reptiles, insects, and birds (U.S. Fish and Wildlife Service 1997b). The burrowing owl, a state special concern species, nests in drain banks.

The subject drains empty into the Salton Sea, which is a critical stop for migrating birds on the ecologically important Pacific Flyway, a major migratory route connecting Canada and the U.S. to Mexico and Central America. Millions of birds, representing more than 350 species, winter at the Sea in one of the few remaining wetland environments along the Pacific Flyway (U.S. Fish and Wildlife Service 1997b). Salton Sea bird communities represent a significant proportion of the breeding populations of many species (Tetra Tech Inc. 2000).

Federal and state refuges are near where the subject drains empty into the Salton Sea. The Salton Sea National Wildlife Refuge and the Wister Wildlife Management Unit are located at the southern end of the Salton Sea, where the New River and Alamo River form the Sea's delta.

The federally-administered Salton Sea National Wildlife Refuge was established in 1930 to preserve wintering habitat for migratory birds, and to provide forage areas to limit crop damage caused by migratory and resident birds. The state-administered Wister Wildlife Management Unit was established in the 1950s as a way station for migratory waterfowl. Both refuges contain state and federally endangered and threatened species.

Drains that empty directly into the Salton Sea support a vastly different ecosystem than that of the Salton Sea itself, despite the Sea receiving agricultural discharges and other relatively freshwater flows from the drains and other waterways (e.g., Alamo River and New River). This is due to physical and chemical differences, the most important being the Sea's high salinity level. Species that reside at the Sea are generally much more salt tolerant than species residing within the drain network. The interface between the drains and the Salton Sea contains elements of both ecosystems, and serves as a transition zone where fresh and salt water intermix to form brackish water.

The Salton Sea food web involves sediment-dwelling (bottom) invertebrates and aquatic plants that are consumed by fish. Higher trophic levels are represented by water birds, whose primary food sources include fish and aquatic invertebrates in the Sea itself. Other food sources for birds are found along shorelines and in nearby fresh/brackish water wetlands and agricultural drains, and include aquatic plants, terrestrial invertebrates, amphibians, and reptiles. Common water bird species include the eared grebe, black-necked stilt, American avocet, and ring-billed gull. Catastrophic die-offs of birds and fish since 1992 indicate that the Sea potentially is impaired by a number of pollutants.

Habitats

Available habitat is intricately associated with wildlife diversity and abundance. Environmental impacts to habitat have direct impacts on the wildlife dependent upon that particular habitat. Habitat disturbance due to frequent dredging has resulted in the limited distribution of native vegetation throughout the Imperial Valley.

Habitats of drains that empty directly into the Salton Sea are described below. These habitats include tamarisk scrub and open water.

Tamarisk scrub is one of the most common habitats in the project area. This habitat consists mainly of introduced *Tamarix* species. These non-native shrubs replace native vegetation, especially in riparian areas, and reduce water available for wildlife.

Open water occurs in the drains and the Salton Sea. This habitat is the portion that is always flooded, and may support submerged or emergent vegetation. Algae make up the primary plant community in the Salton Sea.

The project area is near other habitats utilized by wildlife. These other habitats include agricultural land, cave/mine/cliff crevices, fine sand, and non-riparian brushy areas. Additionally, freshwater marsh, cismontane alkali marsh, and mudflats are also near by, associated largely with the delta areas where the Alamo River and New River meet the Salton Sea. Though not considered natural habitat, houses and residential areas also are used by

wildlife, as buildings and planted trees/shrubs provide food and cover.

List of Occurring Plants

Table 3 lists plant species that occur in the vicinity of all drains that empty directly into the Salton Sea. This list is not complete, but rather, is representative of plants in the area.

Table 3. Representative List of Plant Species in the Vicinity of Drains That Empty Directly Into the Salton Sea

Common Name	Scientific Name	Special Status
Chamise	<i>Adenostoma fasciculatum</i>	No
Western ragweed	<i>Ambrosia psilostachya</i>	No
Fiddleneck	<i>Amsinckia intermedia</i>	No
Quail bush	<i>Atriplex canescens</i>	No
Slender wild oat	<i>Avena barbata</i>	No
Black mustard	<i>Brassica nigra</i>	No
Foxtail chess	<i>Bromus madritensis</i>	No
Brome	<i>Bromus rubens</i>	No
Sedge	<i>Carex barbarae</i>	No
Yellow-star thistle	<i>Centaurea solstitialis</i>	No
Bull thistle	<i>Cirsium vulgare</i>	No
Poison hemlock	<i>Conium maculatum</i>	No
Common horseweed	<i>Conyza canadensis</i>	No
Cardoon	<i>Cynara cardunculus</i>	No
Jimsonweed	<i>Datura wrightii</i>	No
Doveweed	<i>Eremocarpus setigerus</i>	No
Long-beaked filaree	<i>Erodium botrys</i>	No
Red-stemmed filaree	<i>Erodium cicutarium</i>	No
Western sunflower	<i>Helianthus annuus</i>	No
Cow parsnip	<i>Heracleum sphondylium</i>	No
Telegraph weed	<i>Heterotheca grandiflora</i>	No
Prickly lettuce	<i>Lactuca serriola</i>	No
Alfalfa	<i>Medicago sativa</i>	No
Common reed	<i>Phragmites australis</i>	No
Bristly ox-tongue	<i>Picris echioides</i>	No
Arrowweed	<i>Pluchea sericea</i>	No
Rabbitfoot grass	<i>Polypogon monspeliensis</i>	No
Wild radish	<i>Raphanus sativus</i>	No
Castor bean	<i>Ricinus communis</i>	No
Golden dock	<i>Rumex maritimus</i>	No
Willow	<i>Salix hindsiana</i>	No
Russian thistle	<i>Salsola tragus</i>	No
Tamarisk	<i>Tamarix</i> spp.	No
Stinging nettle	<i>Urtica holosericea</i>	No

IMPACT TO BIOLOGICAL RESOURCES

Impact Assessment

Drains that empty directly into the Salton Sea contain important biological resources, including special status wildlife, plants, and natural communities. Over one-hundred special status species and natural communities, including nineteen endangered and/or threatened species, were identified in the literature review as occurring or potentially occurring in the project vicinity (Table 1). However, some of these species do not occur due to a lack of suitable habitat (e.g., fine sand) on-site, and thus will not be impacted by the project. Other species have a low potential for occurring on-site, and thus a low potential for being impacted by the project. Many species that do occur on-site are associated with the area where the drains empty into the Salton Sea (U.S. Fish and Wildlife Service 1997a).

Table 4 presents information for the project area regarding special species' natural history--including habitat (nesting, roosting, and/or foraging) and local presence (regardless of abundance)--and potential for being impacted by the project. The impact assessment is based on species' sensitivity to project impacts, species' natural history requirements, site proximity to known occurrences, species' range, seasonal abundance, consultation with local resource managers, and professional experience.

Table 4. Special Species and Natural Communities—Natural History and Impact Assessment

Species	Scientific Name	Habitat	Local Presence	Potential for Being Impacted
Wildlife = 91				
Cheeseweed owlfly	<i>Oliarces clara</i>	Riparian	Sp	None
Colorado River toad	<i>Bufo alvarius</i>	Riparian, Ag	Y	None
Arroyo southwestern toad	<i>Bufo microscaphus californicus</i>	Riparian	Y	None
Couch's spadefoot	<i>Scaphiopus couchii</i>	Scrub	Y	None
Lowland leopard frog	<i>Rana yavapaiensis</i>	Open Water	Y	None
Flat-tailed horned lizard	<i>Phrynosoma mcalli</i>	Sand	Sp, S, F	None
Colorado Desert fringe-toed lizard	<i>Uma notata notata</i>	Sand	Y	None
Desert tortoise	<i>Gopherus agassizi</i>	Scrub	Y	None
Desert pupfish	<i>Cyprinodon macularius</i>	Open Water	Y	None
Razorback sucker	<i>Xyrauchen texanus</i>	Open Water	Y	None
Common loon	<i>Gavia immer</i>	Open Water	Sp, F	None
American white pelican	<i>Pelecanus erythrorhynchos</i>	Open Water, Mudflat	Y	None
California brown pelican	<i>Pelecanus occidentalis californicus</i>	Open Water, Mudflat	Y	None

Species	Scientific Name	Habitat	Local Presence	Potential for Being Impacted
Double-crested cormorant	<i>Phalacrocorax auritus</i>	Open Water	Y	None
American bittern	<i>Botaurus lentiginosus</i>	Wetland	Y	None
Western least bittern	<i>Ixobrychus exilis hesperis</i>	Wetland	Y	None
Great blue heron	<i>Ardea herodias</i>	Mudflat, Wetland	Y	None
Great egret	<i>Ardea alba</i>	Mudflat, Wetland	Y	None
Snowy egret	<i>Egretta thula</i>	Mudflat, Wetland	Y	None
Black-crowned night heron	<i>Nycticorax nycticorax</i>	Wetland	Y	None
White-faced ibis	<i>Plegadis chihi</i>	Wetland, Ag	Y	None
Wood stork	<i>Mycteria americana</i>	Mudflat, Wetland	S, F	None
Fulvous whistling duck	<i>Dendrocygna bicolor</i>	Wetland	Sp, S, F	None
Aleutian Canada goose	<i>Branta canadensis leucopareia</i>	Ag, Wetland	F, W	None
Canvasback	<i>Aythya valisineria</i>	Open Water	Y	None
Osprey	<i>Pandion haliaetus</i>	Riparian, Open Water	Y	None
White-tailed kite	<i>Elanus leucurus</i>	Wetland, Ag	Y	None
Bald eagle	<i>Haliaeetus leucocephalus</i>	Mudflat, Open Water	W	None
Golden eagle	<i>Aquila chrysaetos</i>	Ag, Scrub, Aerial	Y	None
Northern harrier	<i>Circus cyaneus</i>	Ag, Wetland	Y	None
Sharp-shinned hawk	<i>Accipiter striatus</i>	Riparian, Scrub	Sp, F, W	None
Cooper's hawk	<i>Accipiter cooperi</i>	Riparian, Scrub	Sp, F, W	None
Swainson's hawk	<i>Buteo swainsoni</i>	Ag	S, W	None
Ferruginous hawk	<i>Buteo regalis</i>	Ag	F, W	None
Merlin	<i>Falco columbarius</i>	Ag	F, W	None
American peregrine falcon	<i>Falco peregrinus anatum</i>	Wetland	Y	None
Prairie falcon	<i>Falco mexicanus</i>	Ag	Y	None
California black rail	<i>Laterallus jamaicensis coturniculus</i>	Wetland	Y	None
Yuma clapper rail	<i>Rallus longirostris yumanesis</i>	Wetland	Y	None
Greater sandhill crane	<i>Grus canadensis tabida</i>	Ag	F, W	None
Western snowy plover	<i>Charadrius alexandrinus nivosus</i>	Mudflat	Y	None
Mountain plover	<i>Charadrius montanus</i>	Ag	Sp, F, W	None

Species	Scientific Name	Habitat	Local Presence	Potential for Being Impacted
Long-billed curlew	<i>Numenius americanus</i>	Wetland, Ag	Y	None
Laughing gull	<i>Larus atricilla</i>	Open Water, Mudflat	Y	None
California gull	<i>Larus californicus</i>	Open Water, Mudflat, Ag	Y	None
Van Rossem's gull-billed tern	<i>Sterna nilotica vanrossemit</i>	Mudflat, Ag	Sp, S, F	None
Caspian tern	<i>Sterna caspia</i>	Open Water, Mudflat	Y	None
Forster's tern	<i>Sterna forsteri</i>	Open Water, Mudflat	Y	None
Black tern	<i>Chlidonias niger</i>	Mudflat, Ag	Sp, S, F	None
Black skimmer	<i>Rynchops niger</i>	Mudflat	Sp, S, F	None
Burrowing owl	<i>Athene cunicularia</i>	Ag	Y	None
Long-eared owl	<i>Asio otus</i>	Riparian	W	None
Short-eared owl	<i>Asio flammeus</i>	Ag	F, W	None
Vaux's swift	<i>Chaetura vauxi</i>	Aerial	Sp, F	None
Rufous hummingbird	<i>Selasphorus rufus</i>	Houses, Scrub	Sp, S, F	None
Gila woodpecker	<i>Melanerpes uropygialis</i>	Houses, Scrub	Y	None
Olive-sided flycatcher	<i>Contopus borealis</i>	Houses, Scrub	Sp, F	None
Willow flycatcher	<i>Empidonax traillii</i>	Houses, Scrub	Sp, F	None
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>	Houses, Riparian	Y	None
California horned lark	<i>Eremophila alpestris actia</i>	Ag	Y	None
Purple martin	<i>Progne subis</i>	Aerial, Riparian	Sp, F	None
Bank swallow	<i>Riparia riparia</i>	Aerial, Ag	Sp, S, F	None
Black-tailed gnatcatcher	<i>Poliophtila melanura</i>	Scrub	Y	None
Crissal thrasher	<i>Toxostoma crissale</i>	Scrub, Riparian	Y	None
Le Conte's thrasher	<i>Toxostoma lecontei</i>	Scrub	Y	None
Loggerhead shrike	<i>Lanius ludovicianus</i>	Scrub, Ag	Y	None
Least Bell's vireo	<i>Vireo bellii pusillus</i>	Riparian	Sp, S	None
Virginia's warbler	<i>Vermivora virginiae</i>	Scrub	F	None
Yellow warbler	<i>Dendroica petechia brewsteri</i>	Riparian, Houses	Sp, F, W	None
Hermit warbler	<i>Dendroica occidentalis</i>	Scrub, Houses	Sp, F	None
Yellow-breasted chat	<i>Icteria virens</i>	Riparian	Sp, S, F	None
Summer tanager	<i>Piranga rubra</i>	Houses	F	None
Abert's towhee	<i>Pipilo aberti</i>	Scrub	Y	None
Chipping sparrow	<i>Spizella passerina</i>	Houses	Sp, F, W	None
Brewer's sparrow	<i>Spizella breweri</i>	Ag, Scrub	Sp, F, W	None
California gray-headed junco	<i>Junco hyemalis caniceps</i>	Scrub, Ag	Sp, F, W	None

Species	Scientific Name	Habitat	Local Presence	Potential for Being Impacted
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	Wetland, Ag	Y	None
Lawrence's goldfinch	<i>Carduelis lawrencei</i>	Scrub	Sp, F, W	None
California leaf-nosed bat	<i>Macrotus californicus</i>	Aerial, Cave/Cliff, Scrub, Ag	Y	None
Mexican long-tongued bat	<i>Choeronycteris mexicana</i>	Aerial, Cave/Cliff, Scrub	Sp, S, F	None
Spotted bat	<i>Euderma maculatum</i>	Aerial, Cave/Cliff, Scrub, Ag	Y	None
Pallid bat	<i>Antrozous pallidus</i>	Aerial, Cave/Cliff, Scrub, Ag	Y	None
Pocketed free-tailed bat	<i>Nyctinomops femorasaccus</i>	Aerial, Scrub, Riparian	Y	None
Big free-tailed bat	<i>Nyctinomops macrotis</i>	Aerial, Cave/Cliff, Open Water	Y	None
Townsend's western big-eared bat	<i>Plecotus townsendii townsendii</i>	Aerial, Cave/Cliff, Scrub, Ag	Y	None
California mastiff bat	<i>Eumops perotis californicus</i>	Aerial, Cave, Scrub, Ag	Y	None
Coachella Valley round-tailed ground squirrel	<i>Spermophilus tereticaudus chlorus</i>	Scrub	Y	None
Palm Springs pocket mouse	<i>Perognathus longimembris bangsi</i>	Scrub	Sp, S, F	None
Colorado Valley woodrat	<i>Neotoma albigula venusta</i>	Scrub	Y	None
American badger	<i>Taxidea taxus</i>	Scrub	Y	None
Nelson's bighorn sheep	<i>Ovis canadensis nelsoni</i>	Scrub	Y	None
Plants = 17				
Peirson's pincushion	<i>Chaenactis carphoclinia</i> var. <i>peirsonii</i>	Scrub	Y	None
Mecca-aster	<i>Xylorhiza cognata</i>	Scrub	Y	None
Orcutt's woody-aster	<i>Xylorhiza orcuttii</i>	Scrub	Y	None
California ditaxis	<i>Ditaxis serrata</i> var. <i>californica</i>	Scrub	Y	None
Harwood's milk-vetch	<i>Astragalus insularis</i> var. <i>harwoodii</i>	Sand	Y	None

Species	Scientific Name	Habitat	Local Presence	Potential for Being Impacted
Peirson's milk-vetch	<i>Astragalus magdalenae</i> var. <i>peirsonii</i>	Sand	Y	None
Coachella Valley milk-vetch	<i>Astragalus lentiginosus</i> var. <i>coachellae</i>	Scrub	Y	None
Triple-ribbed milk-vetch	<i>Astragalus tricarlinatus</i>	Scrub	Y	None
Coves's cassia	<i>Senna covesii</i>	Scrub	Y	None
Slender woolly-heads	<i>Nemacaulis denudata</i> var. <i>gracilis</i>	Scrub, Sand	Y	None
Abrams's spurge	<i>Chamaesyce abramsiana</i>	Scrub	Y	None
Brown turbans	<i>Malperia tenuis</i>	Scrub	Y	None
Munz's cholla	<i>Opuntia munzii</i>	Scrub	Y	None
Wiggins's cholla	<i>Opuntia wigginsii</i>	Scrub	Y	None
Giant Spanish-needle	<i>Palafoxia arida</i> var. <i>gigantea</i>	Scrub	Y	None
Thurber's pilostyles	<i>Pilostyles thurberi</i>	Scrub	Y	None
Orocopia sage	<i>Salvia greatae</i>	Scrub	Y	None
Natural Communities = 3				
Transmontane Alkali Marsh	not applicable	not applicable	not applicable	None
Active Desert Dunes	not applicable	not applicable	not applicable	None
Stabilized and Partially Stabilized Desert Dunes	not applicable	not applicable	not applicable	None

Legend:

Habitat:

- Aerial = strong flying species most often seen in the air
- Ag = agricultural land
- Cave/Cliff = cave, mine, cliff crevices
- Houses = houses and residential areas (buildings and planted trees/bushes provide wildlife cover and food)
- Mudflat = mudflat / beach
- Open Water = open water areas (e.g., Salton Sea and drain channels)
- Riparian = shrubby vegetation (e.g., willow, tamarisk) along waterways
- Sand = fine sand
- Scrub = non-riparian brushy areas (e.g., various desert scrub communities)
- Wetland = emergent wetlands, marsh, alkali marsh

Local Presence:

- Sp = Spring (about April through May)
- S = Summer (about June through August)
- F = Fall (about September through October)
- W = Winter (about November through March)
- Y = Year-round (resident, or visitors throughout the year)

Special Status Wildlife

Ninety-one special status wildlife species, including sixteen threatened and/or endangered species, were identified in the literature review as occurring or potentially occurring in the project vicinity (Table 1). However, some of these species do not occur on-site due to a lack of suitable habitat (e.g., fine sand), and thus will not be impacted by the project (Table 4).

The following bullet statements discuss the threatened and endangered species potentially occurring in the project vicinity (Table 1), and the impact that the project will have upon those species (Table 4). Impacts to wildlife that are not threatened or endangered (i.e., state special concern species, rare/sensitive) are summarized in Table 4.

- Twelve threatened and/or endangered species use habitats outside of the project area and/or habitats not affected by reduced sedimentation/siltation (e.g., residential areas, desert scrub communities, riparian thickets, wetland, mudflat, agricultural land). These species include the Arroyo southwestern toad, Desert tortoise, Swainson's hawk, American peregrine falcon, California black rail, Yuma clapper rail, Greater sandhill crane, Western snowy plover, Gila woodpecker, Willow flycatcher, Bank swallow, and Least Bell's Vireo). These species will not be impacted by the project.
- Four threatened and/or endangered species use open water habitat within the project area. These species include the Desert pupfish, Razorback sucker¹, California brown pelican, and Bald eagle. These species will not be impacted by the project. Rather, these species will benefit from reduced sedimentation/siltation.

Special Status Plants

Seventeen special status plant species, including three threatened and/or endangered species, were identified in the literature review as occurring or potentially occurring in the project vicinity (Table 1). The following bullet statements discuss the threatened and endangered species potentially occurring in the project vicinity (Table 1), and the impact that the project will have upon those species (Table 4).

- The Peirson's milk-vetch, Coachella Valley milk-vetch, and Triple-ribbed milk-vetch have no potential for being impacted by the project, due to: (a) lack of suitable habitat on-site (e.g., fine sand), or (b) occurring in habitat not affected by reduced sedimentation/siltation (e.g., desert scrub).

Special Status Natural Communities

Three special status natural communities were identified in the literature review as occurring or potentially occurring in the project vicinity (Table 1). However, these communities do not occur in the project area, and will not be impacted by reduced sedimentation/siltation (Table 4).

¹ The Razorback sucker has not been confirmed in the Salton Sea since before 1910 (California Department of Fish and Game 2000).

Transmontane Alkaki Marsh is a wetland community that occurs outside of the project area, near San Felipe Creek. Active Desert Dunes, and Stabilized and Partially Stabilized Desert Dunes, are scrub communities that occur outside of the project area, on the southwest shore of the Salton Sea (specifically, to the north and adjacent to the road leading to the naval test base headquarters).

Impact Assessment of Project Alternatives

The proposed TMDL (i.e., Preferred Alternative) has been the basis for all discussions in environmental documents, including this Natural Environment Study. The Preferred Alternative is a feasible approach to decrease existing sediment loads in a standard manner throughout the Imperial Valley, and thus to decrease health risks for biological and human communities. However, other alternatives exist, including a No Action Alternative, a Lower Numeric Target Alternative (Alternative 2), and an Increased Regulatory Oversight Alternative (Alternative 3). Each alternative to the proposed TMDL is described briefly below, with an assessment of impacts on biological resources.

The No Action Alternative is defined as no Regional Board adoption of a TMDL and corresponding Implementation Plan. This means that excess sediment in the subject drains would continue to: (a) violate Basin Plan water quality objectives, (b) impair beneficial uses, and (c) place the health of biological and human communities at unacceptable risk. This alternative does not comply with the Clean Water Act or meet the purpose of the proposed action, which is to eliminate ongoing water quality violations. It is precisely because of these problems that law dictates a regulatory action. This alternative would result in adverse impacts to biological resources, and is not acceptable.

The Lower Numeric Target Alternative (Alternative 2) is defined as the proposed project with a lower numeric target of 80 mg/L TSS concentration proposed by the National Academy of Sciences as being moderately protective of aquatic communities (U.S. Environmental Protection Agency 1973). Meeting this lower numeric target would require a lower total load, and thus lower load allocations to agricultural dischargers in the watershed. This alternative would result in similar impacts to biological resources as the proposed project (Preferred Alternative), but the economic impacts to agriculture would be much greater as it would require implementation of the most expensive Management Practices.

The Increased Regulatory Oversight Alternative (Alternative 3) is defined as the proposed project with an Implementation Plan of greater regulatory oversight, including the adoption of conditional waivers, general permits, effluent limitations for the Imperial Irrigation District, and/or effluent limitations for individual responsible parties. This alternative would result in similar impacts to biological resources as the proposed project (Preferred Alternative), but could be unnecessarily burdensome on the regulated community, and unnecessarily exhaustive of limited Regional Board staff resources.

FEDERAL AND STATE SPECIAL LAWS

The Federal Endangered Species Act of 1973 (16 U.S.C. 1531-1543) provides for the conservation of endangered and threatened species and the ecosystems upon which they depend. Section 7 of the Act requires Federal agencies to ensure that actions they authorize, fund or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The U.S. Fish and Wildlife Service administers the federal program.

The California Endangered Species Act (California Department of Fish and Game Code 2080) requires state lead agencies to consult with the Department of Fish and Game during the CEQA process to avoid jeopardy to threatened or endangered species. The California Department of Fish and Game, and County Agricultural Commissioners, administer the state program.

The California Environmental Quality Act (CEQA) requires identification of environmental effects due to proposed projects. Significant effects are to be mitigated by avoidance, minimization, rectification, or compensation whenever possible. Effects to all state and federally listed species are considered significant under CEQA.

The Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711) is an international treaty that makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 CFR Part 10. This includes feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 CFR 21). The MBTA requires that project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (1 February to 31 August, annually) to avoid nest abandonment and/or loss of eggs or young. The loss of habitat upon which the birds depend could constitute a violation of the MBTA.

LOCAL GUIDING PRINCIPLES

The **Salton Sea Authority** is a state agency formed in 1993 that develops programs to continue beneficial use of the Salton Sea, in cooperation with state agencies, federal agencies, and Mexico. (“Beneficial use” is defined as a depository for agricultural drainage, storm water, and wastewater flows; protection of endangered species, fisheries, and waterfowl; and recreation.) The Authority functions under a Joint Powers Agreement between the Coachella Valley Water District, Imperial Irrigation District, Imperial County, and Riverside County.

MITIGATION MEASURES

Many Imperial Valley drains require periodic dredging to maintain adequate drainage, due to sediment loads received from agricultural fields. Dredging potentially suspends about 1,109 tons/year of sediment from the subject drains (see TMDL Staff Report). Some of this sediment stays suspended in the water, though the amount is unknown. Regional Board monitoring of an IID dredging operation showed that dredging increased downstream TSS concentration from the low hundreds to as high as 5,000 mg/L.

At the time of this analysis, it was uncertain what measures IID may implement to mitigate for dredging operations to ensure TMDL compliance. Options include reducing the amount and frequency of dredging, and implementing appropriate seasonal dredging restrictions (i.e., outside of the March through August nesting season) to avoid impacts on sensitive resources. Because of the uncertainty, the proposed Basin Plan Amendment requires IID to submit a Revised Drain Water Quality Improvement Plan (DWQIP) that details a sediment-control and monitoring program for its drains that empty directly into the Salton Sea, pursuant to Section 13267 of the California Water Code. The program, in part, must identify proposed control measures and a time schedule for implementation. IID is a "Public Agency" as defined by state law (PRC 21063), and acts as a Lead Agency for its projects to comply with CEQA requirements (PRC 21159.2, State CEQA Guidelines 15189).

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